



COUNTY OF LEXINGTON, SOUTH CAROLINA

Public Works Stormwater Division

440 Ball Park Road

Lexington, SC 29072

Phone: (803) 785-8201 Fax: (803) 785-8593

LEXINGTON COUNTY CHECKLIST FOR DESIGN OF COMMERCIAL DEVELOPMENTS

A pre-submittal and/or DRM meeting is required for all sites before plans are submitted for review.

Please indicate the location and page number(s) where each item below can be found in your SWPPP or supporting calculations. If an item is not applicable, put N/A. Lexington County reserves the right to modify this checklist at any time.

All items required for a design are not included on this checklist. You must refer to the Lexington County Land Development Manual for information on all design requirements.

Project Name: _____

Checklist Completed by:

Printed

Name _____ Signature _____ Date: _____

GENERAL

1. CURRENT COMPLETED APPLICATION FORM/DHEC NOI

- Original Signature of individual with signatory authority for the applicant according to requirements set forth in R. 61-9.122.22 (see Appendix C)
- All Commercial Land Disturbance Submittals must be submitted to the Community Development Division (803-785-8121).

2. ONE SET OF COMPLETED SITE PLANS, CALCULATIONS, AND C-SWPPP FOR INITIAL REVIEW. IF A PROJECT IS IN A MUNICIPALITY IT MUST GO TO THE MUNICIPALITY BEFORE IT IS SUBMITTED TO LEXINGTON COUNTY.

3. FEES

All fees must be paid before the review process will begin.

Plan review fees can be found on the Public Works Stormwater Division website:

(<http://www.lex-co.com/Departments/publicworks/index.html>)

4. COVER SHEET

- Project Name
- Engineer's Contact Information (name, mailing address, telephone, fax, email)
- Developer's Contact Information (name, mailing address, telephone, fax, email)
- Table of Contents
- Location Map
- Room in the Lower Right Corner for Approval Stamp
- Applicant and design certification

5. VICINITY MAP

- Include North arrow and scale
- Outlined project location
- Labeled road names

6. PROJECT NARRATIVE

- Scope of project outlined, including a brief description of pre- and post-development conditions.
- Statement regarding stormwater design option being used (Option A or Option B)
- Summary table to include:
 - Pre- and post-development flows for the 1, 2, 10, 25 and 100 year storm events
 - WQv and CPv treatment volumes
 - Post-development discharge velocities
 - Downstream analysis finding
- Information on pond performance
- Overview of structural and non-structural post construction BMPs being used on site
- Discussion of long term operation and maintenance responsibilities for structural and non-structural post construction BMPs
- Existing flooding problems in the surrounding area described.

6. SITE PLAN CHECKLIST

- Size of plans shall be 24" x 36"
- Engineer stamp and signature
- Engineering Firm's Certificate of Authorization seal
- Location map
- Correct Scale and North Arrow
- Contours are to be tied to a known datum, no assumed elevations,
- Lot Layout
- Property lines, adjacent landowners' names, and land use conditions.
- Existing and proposed contours for entire disturbed area.
- Limits of disturbed area outlined on the plans.
- Locations of all areas NOT to be disturbed clearly outlined on plans
- Locations of off-site material, waste, borrow, or construction equipment storage areas, excluding roll-off containers (*Note: Some off-site disturbed areas may require a separate application for NPDES coverage*)
- Location and identification of any stormwater discharges associated with industrial activity (not construction)
- Location of Concrete Washout , materials storage, and other Pollution Prevention Measures
- Easements
- Road profiles with existing and proposed ground elevations (if no contours are shown on the plans).
- Construction sequence (see Item #14).
- Time schedule for each activity on the construction sequence
- Locations of all temporary and permanent control measures (erosion and sediment controls and post construction stormwater BMPs)
- Details for all temporary and permanent control measures
- Grassing and stabilization specifications
- Maintenance requirements (for temporary and permanent controls, grassing, etc.)
- Construction entrance/exit
- Standard notes. SCDHEC standard notes can be found on their website:
- Individual lot erosion control plan (applicable to commercial subdivisions)

9. USGS TOPOGRAPHIC MAP

- Project boundary outlined
- Route of runoff from site to nearest waterbody shown
- Critical areas downstream of site indicated

- Road names adjacent to site labeled

10. SOILS INFORMATION

- Project boundary outlined
- Predominate soil types found at the site identified on the plans or on a separate map
- *Note: Soils information is available from the Natural Resource Conservation Service through their website: <http://websoilsurvey.nrcs.usda.gov/app/>*

11. FLOODWAY MAPS/FEMA FLOOD INSURANCE MAP

- Project boundary outlined, if in close proximity of floodplain/floodway
- 100-yr floodplain contour line associated with FEMA and County floodway and floodplain
- Contact must be made with the Lexington County Floodplain Manager (803-785-8121).

12. NAVIGABLE WATERS

- Extra plan sheet showing impacts to navigable water and description of activity included if S.C. Navigable Waters (SCNW) crossing and separate SCNW permit has not been obtained for all activities
- *Note: For NOI's initially submitted to delegated entities, if project has SCNW crossing and if separate SCNW permit has not been obtained for this crossing, then this item will be reviewed by S.C. DHEC before NPDES coverage will be granted.*

13. WETLANDS/WATERS-OF-THE-STATE (WOS)

- Show and label on plans delineation of all waters of the State (WoS), including wetlands, verified by Army Corps of Engineers. Where impacts to WoS are to occur, show the areas to be impacted with a description of the activity(s), whether it is permanent or temporary, and any other relevant information.
- If impacts to WoS are to occur, outline areas of impacts on the plans and include labels indicating that no work can begin in this area until all necessary USACOE permits and SCDHEC 401 certifications have been obtained.
- Minimum 10' maintenance buffer provided between last row of silt fence and WoS; or, if buffer not provided, then statement from P.E. on plans indicating how silt fence will be installed and maintained without impacts to WoS
- *Note: If there are proposed impacts to WoS, then it is advised that you contact the UCACOE (866-329-8187) and/or S.C. DHEC Water Quality Certification, Standards & Wetlands Programs Section (803-898-4300) to determine additional requirements before submitting this NOI.*
- *Note: If WoS are to be impacted, work cannot be performed in these designated areas until all necessary permits have been acquired.*
- *Note: If USACOE permit is required for construction of a permanent stormwater management structure, NPDES permit coverage cannot be granted until the USACOE permits and S.C. DHEC 401 Section certificates are obtained.*
- *Note: SCDHEC recommends a 20-foot buffer between a sediment trap/basin and waters of the State and wetland areas.*

14. CONSTRUCTION SEQUENCE

- Construction Sequence should accurately reflect the nature and timing of construction activities for the site
- The sequence should begin with the installation of perimeter controls and end with the removal of sediment and erosion control measures once the site has been finally stabilized
- Address the timing of conversion of any temporary sediment control structures to permanent measures (i.e., conversion of a sediment basin to a permanent detention basin)
- The sequence should reflect implementation and transition between each phased plan (see item 15 below)

15. PHASED SEDIMENT & EROSION CONTROL PLANS

- Phased Sediment and Erosion Control Plans are not required when land-disturbance is 5 acres or less
- For land-disturbance between 5 and 10 acres, a two-phased stormwater management and sediment and erosion control plan is required for all non-linear projects. Each phase must be shown on a separate plan sheet. Plans should address the transition between phases.
 - Phase 1 – Initial Land Disturbance – Must include perimeter sediment and erosion control BMPs required prior to initial/mass clearing and other appropriate BMPs needed to maintain compliance with the permit. On some sites, this may include appropriate BMPs for demolition of existing structures
 - Phase 2 – Stabilization – Sediment and erosion control BMPs required during the remainder of grading and construction. Must also include appropriate BMPs at final grade and for stabilization – grassing, inlet protection, etc.
- For land-disturbance greater than 10 acres, a three-phased stormwater management and sediment and erosion control plan is required for all non-linear projects. Each phase must be shown on a separate plan sheet. Plans should address the transition between phases.
 - Phase 1 – Initial Land Disturbance – Must include perimeter sediment and erosion control BMPs required prior to initial/mass clearing and other appropriate BMPs needed to maintain compliance with the permit. On some sites, this may include appropriate BMPs for demolition of existing structures
 - Phase 2 – Construction – Sediment and erosion control BMPs required during the majority of grading and construction activities
 - Phase 3 – Stabilization – Sediment and erosion control BMPs required near the completion of the construction project. Must also include appropriate BMPs at final grade and for stabilization – grassing, inlet protection, etc.

16. LAND DISTURBANCE BUFFERS

- For sites disturbing from 1 to 5 acres
- Select Compliance Option A, B, or C in Section 3.2.4.C of the CGP and provide appropriate documentation
 - Double row silt fence provided in all areas where a 50' undisturbed buffer cannot be maintained between the disturbed area and the WoS
 - Minimum 10' maintenance buffer provided between last row of silt fence and WoS; or, if buffer not provided, then statement from P.E. on plans indicating how silt fence will be installed and maintained without impacts to WoS
- Ensure discharges into a buffer zone are non-channelized and non-concentrated to prevent erosion, and first treated by the construction site's sediment and erosion controls
- Ensure any velocity dissipation measures implemented within a buffer zone comply with 3.2.4.C.III (d)
- See Item 17 for more information on permanent water quality buffers.

17. PERMANENT WATER QUALITY BUFFERS

- For sites disturbing 5 acres or more
- Lexington County requires a 100 ft water quality buffer on all perennial streams and a 50 ft water quality buffer on all intermittent streams as identified on a 7.5 USGS quad map, US Army Corp of Engineers of the Public Works Stormwater Division. Water quality buffers cannot be disturbed during project construction and must be left in the existing condition upon completion of construction activities.
- Lexington County requires a 50 ft water quality buffer on all wetlands delineated outside of perennial or intermittent streams.
- Submit a Buffer Plan in conjunction with the erosion prevention and sediment control plan, SWPPP Document, and all applicable calculations for a land disturbance permit (as required by PW/SWD in Chapter 7 of the Land Development Manual). Plans should include access to buffer areas for maintenance.
- Water quality buffers must be clearly identified on all stormwater management plans and construction drawings and marked with the statement “Water Quality Buffer. Do Not Disturb”
- Water quality buffers must be marked in the field prior to construction beginning. The locations of signage must be clearly shown on plans.
- A narrative stating the extent of the buffer areas, including any allowed disturbance in the buffer areas (this should be in the narrative as well as in the SWPPP Document) must be included with the plans.
- A double row of silt fence (with metal posts and wire backing) shall be shown on the upstream side of the applicable buffer area(s).
- Concentrated stormwater discharges cannot be conveyed through the section of the buffer with the minimal width

18. WATER QUALITY CREDIT AREAS

- Identify water quality credit areas on the site plan.
- Where a water quality credit requires that the credit area not be disturbed, clearly mark the areas on the plans as Water Quality Credit Area – DO NOT DISTURB
- Provide BMPs around the water quality credit areas to ensure protection
- See item #31 for further details on Site Design Credit Areas.

19. FLOW CONTROL

- Control stormwater volume and velocity within the site during construction to minimize erosion within the site
- Control stormwater rates and volume at outlets during and after construction to minimize erosion to downstream properties and streambanks

20. SEDIMENTOLOGY

- Provide a drainage area map outlining the area contributing to sediment basins, traps, and rock sediment dikes.
- Sediment basins. Provide trapping efficiency calculations showing that all sediment basins/ traps are capable of achieving a sediment trapping efficiency of at least 80% for the 10-year, 24-hour storm event, if more than 10 disturbed acres drain to a common point (stream, lake, etc.). Include calculations to show that sediment basins provide storage for the 10-year, 24-hour storm event for disturbed conditions or 3600 ft³/ acre draining to the basin, if more than 10 disturbed acres drain to a common point (stream, lake, property line, etc.)
- Sediment traps. Sediment traps can only be used for drainage areas of less than 5 acres. Provide sediment trap storage calculations, showing that 1800 ft³/ total acre draining to each trap is provided below the spillway. If trapping efficiency calculations are required for sediment traps, then provide peak outflow, q_{po} , calculations; the 10-year, 24-hour storm event for construction conditions cannot overtop the trap's spillway
- Sediment basins and traps must be designed for total area draining to them
- Curve Number for construction analysis needs to reflect construction/disturbed conditions. Curve Numbers for newly graded areas are:

- Hydrologic Soil Group “A”: 77
- Hydrologic Soil Group “B”: 86
- Hydrologic Soil Group “C”: 91
- Hydrologic Soil Group “D”: 94
- Copies of figures used to determine V_{15} (SV-1) and trapping efficiency (ST-1, SB-1, SB-2), if Design Aids from BMP manual are used to determine trapping efficiencies.
- When multiple D_{15} values exist for an area, use the soil type with the smallest D_{15} for the appropriate depth to determine the settling velocity, V_{15} . Do not use an average D_{15} .
- Sediment basins must dewater via an outlet structure that pulls water from the surface. Options for this include skimmers and flash board risers. Surface dewatering is not required for traps.
- Porous baffles must be provided in sediment basins
- Forebays must be installed, unless infeasible
- Public safety should be taken into consideration as a factor in design of sediment basin. Alternative BMPs must be utilized where a construction site limitations would preclude a safe design
- Silt fence only used in areas with drainage areas of less than ¼ acre per 100 LF of fence and not used in areas with concentrated flows
- Clean-out stake, marked at 1/3 the designed sediment storage depth, provided in all sediment basins/ sediment traps
- Indicate the placement of all BMPs (silt fence, inlet protection, construction entrance, rip-rap at outfalls, check dams etc.) on the site plan
- Include notes on the site plan that disturbed areas must be stabilized within 14 days (for all disturbed areas)
- Note stating “temporary sediment pond shall be eliminated after 80% of the site is stabilized”
- *Note: Consult the SC DHEC BMP Handbook for information on the design of these and other devices.*
- *Note: The Design Aids in the SC DHEC BMP Handbook cannot be used to determine trapping efficiencies for structures in series. If the flow for the 10-year, 24-hour storm for construction conditions overtops the structure or the structure’s spillway, then the Design Aids cannot be used. If multiple soil types are in the area draining to the structure, then the soil type with the smallest D_{15} for the appropriate depth should be used to determine the settling velocity, V_{15} ; an average D_{15} should not be used.*

21. CONVEYANCE MEASURES AND STABLE CHANNEL CALCULATIONS

- All channels and diversion ditches must be able to handle the 25 year storm event with non-erosive velocities of less than 5 feet per second during construction and post-construction
- Stabilization of conveyance channels is to be completed within 7 days of channel construction
- Rock check dams must be provided in temporary diversion channels
- Include installation details for erosion control blanket (ECB) or turn reinforcement matting (TRM) if ECBs or TRMs are to be used.
- All ditches/swales must be double seeded.
- Temporary conveyance channels should be utilized to divert concentrated stormwater flows from running onto and within the disturbed area

22. INLET PROTECTION

- Inlet protection must be provided at all inlets (existing and proposed) and shown on the site plans.
- Hay bales are not allowed
- Steel posts and buried fabric must be shown on the details for filter fabric inlet protection. Wood posts are not allowed.
- Inlet protection provided for pre-paving and after roadways have been paved.
- Include construction details for each type of inlet protection to be installed on the site.
- *Note: SC DHEC recommends that an inlet not have more than one (1) acre draining to it.*

23. ENERGY DISSIPATORS/OUTLET PROTECTION

- All outlets shall be stabilized against erosion, and construction details provided.
- Calculations for riprap aprons must be provided and dimensions (including stone sizes) shown on the

- plans or in a table. Filter fabric must be installed beneath all riprap
- Note that appropriate outlet protection and energy dissipation is also required for post-construction

24. FILL SLOPES AND/OR EMBANKMENTS

- All slopes shall be provided with permanent stabilization.
- All slopes within 20' of the property line must be adequately protected
- Minimize disturbance to Slopes that are 3H:1V or steeper
- Divert concentrated flows around steep slopes using slope drains or temporary diversions
- Utilize appropriate measures to prevent erosion (erosion blankets, surface roughening, terracing, etc.)
- Provide slope drains where concentrated flows discharge onto fill slopes. Slope drains must be designed in accordance with the South Carolina DHEC Storm Water Management BMP Handbook
- For all slopes steeper than 1.5:1, identify the stabilization practice (e.g., ECB, TRM)
- Measures, in addition to grassing or hydroseeding, include synthetic or vegetative matting, diversion berms, temporary slope drains, etc.
- If retaining walls or fill slopes are to be constructed at the downstream property line, a 10' buffer must be shown to allow for construction and maintenance. If a 10' buffer is not provided, then provide permission from the adjacent property owner for possible land-disturbing activities on his property.

25. UTILITY LINES

- Limits of disturbance include areas disturbed for installation of all utilities (cable, electrical, natural gas, water and sewer), as appropriate.
- For instances where the location of cable, electric, and natural gas has not been determined at the time the SWPPP is developed, SWPPP preparer may include a note that the installation of these is to be within the permitted limits of disturbance and that installation outside of these areas will require a modification to the permit
- Inlet protection shall be provided at all existing inlets that receive flows from the disturbed areas; also add this as a note on the plans.
- For all utility lines crossing WoS, a narrative and detail showing sediment and erosion control measures shall be provided on plans.
- Include a note on the plans that construction entrances are to be provided at all locations where construction traffic accesses a paved roadway.

26. STAKING AND GRADING PLAN

- Entire Boundaries of property
- Existing conditions
- 2' contours
- Time schedule for each activity on the construction sequence (see item #14 for further detail).
- Sight Distances
- Show existing roads and/or commercial drives across the road from the proposed access entrance.
- Entrance Islands (12' from the edge of pavement of existing street. Signs are to be 5' from back of curb, minor drainage system.)
- Call out expulsion curb to be used at islands.
- On storm drain lines show inverts (in and out), diameter, length and slope of pipe, and cfs.

27. CONSTRUCTION DETAILS

Provide construction details for all BMPs to be installed during active construction and when the site has been stabilized. The construction details must show dimensions as appropriate, as well as maintenance requirements for construction site BMPs.

28. TMDL/ 303d IMPAIRED WATERBODIES (CONSTRUCTION)

- Provide a qualitative and quantitative assessment (described in Section 3.4C of SCR100000), if the nearest WQMS is listed on the 303(d) List of Impaired Waters and if the site's stormwater construction discharges contain the pollutant of impairment and if the site disturbs 25 or more acres
- Provide an evaluation of selected BMPs if the nearest WQMS is listed on the 303(d) List of Impaired Waters and if the site's stormwater construction discharges contain the pollutant of impairment and if the site disturbs less than 25 acres
- Construction pollutants of concern include TURBIDITY, BIO (Macroinvertebrate), TP (Total Phosphorus), TN (Total Nitrogen), and Chlorophyll-A.
- Link to Water Quality Information Tool and Instructions:
<http://gisweb01.dhec.sc.gov/water/Stormwater.html?mode=0>
- If an approved TMDL has been developed for the nearest WQMS and if the site's stormwater construction discharges contain the pollutant of impairment, show that measures and controls on the SWPPP meet assumptions and requirements of the TMDL (may need to contact DHEC's Watershed Manager for assistance)
- For TURBIDITY, BIO (Macroinvertebrate) TMDLs, consider inclusion of BMPs to reduce sediment load such as: sediment traps and basin designed to meet 80% sediment removal efficiency (regardless of size), additional measures to stabilize site, limited clearing and grading
- For TP (Total Phosphorous), TN (Total Nitrogen), and Chlorophyll-A TMDLs, consider inclusion of BMPs to reduce nutrient load. This could include limited clearing and grading, soil samples to determine nutrient requirements during grassing

POST-CONSTRUCTION

Two options are available to meet the post-construction stormwater management requirements. Please check the option selected for this project:

- ☐ Option A –Traditional method outlined in Section 3.5 of the Land Development Manual. (Note that this design method was adopted in the 2007 version of the Land Development Manual). This option is only allowed where ponds and other BMPs installed on the project are to be privately maintained perpetually.
- ☐ Option B –Unified Sizing Criteria Method outlined Section 3.6 of the Land Development Manual. All BMPs that are to be maintained by the County shall be designed using this design methodology.

29. OPTION A – TRADITIONAL METHOD

- Post-development discharge rates shall not exceed pre-development discharge rates for the 2, 5, 10, and 25-year frequency 24-hour duration storm events. The same hydrologic procedures shall be used in determining both the pre-development and post-development peak flow rates.
- Detain the pre-developed runoff volume for the 2 and 10-year 24-hour storm events for a period of 24-hours.
- Permanent water quality ponds and water quality structures having a permanent pool elevation shall be designed to store the first ½-inch of runoff from the contributing area of the site and release the accumulated water quality volume (WQv) over a minimum period of 24-hours.
- Permanent water quality structures not having a permanent pool elevation shall be designed to store the first 1-inch of runoff from the contributing area of the site and release the WQv over a minimum period of 24-hours.
- Pretreatment devices such as forebays, vaults, or other devices that remove debris and coarser sediments from the drainage system are required.

30. OPTION B - UNIFIED SIZING CRITERIA (USC)

- Water Quality (WQv): Provide calculations to show that post-construction BMPs and water quality credits are used to treat WQv for each discharge point.
- Channel Protection (CPv): Provide calculations to show extended detention of the 1-year, 24-hour storm event released over a period of 24 hours for each discharge point.
- Overbank Flood Protection (Q_{FP}): Provide peak discharge control of the 2-year, 10-year and 25-year storm events such that the post-development peak rate does not exceed the predevelopment rate (see item #29 for appropriate rainfall data to use for calculations) for each discharge point.
- Extreme Flood Protection (Q₁₀₀): Provide a downstream analysis to evaluate the effects of the 100-year storm on the stormwater management system, adjacent property, and downstream facilities and properties. Where the downstream analysis shows that runoff from the site has a negative downstream impact such as flooding structures and/or causing overtopping of a roadway, provide the stormwater mitigation efforts to reduce the impact such as:
 - o Additional onsite stormwater controls –
 - o Upgrading downstream conveyance system components (such as undersized culverts) and/or
 - o Obtaining flow or drainage easements from downstream landowners of land impacted by increased runoff.
- *Note: See the attached Volume Calculation Summary Sheet for guidance.*
-
- *Note: Orifice diameters for CPv control of less than 3 inches are not recommended without adequate clogging protection.*
- *Note: Flows can be conveyed without retention or detention to a receiving floodplain if it can be shown that the floodplain is sufficiently sized to account for extreme flow increases from the site without causing damage or negative impacts such as flooding of structures or roadway overtopping.*

31. HYDROLOGIC ANALYSIS

- Provide calculations supporting post-development discharge velocities will not cause erosion to the project outlet or downstream properties.
- Drainage area maps that clearly correspond to the calculations (see item #35 for further details).

- Analysis performed at the same points and with the same drainage area for both pre- and post-development.
- Post-development discharges less than pre-development discharges for each outfall point.
- Analysis performed using SCS 24-hour, Type II Storm (Rational method not acceptable)
- Used rainfall data from South Carolina DHEC Storm Water Management BMP Handbook

1-Year	2-Year	10-Year	25-Year	100-Year
3.1"	3.6"	5.3"	6.4"	8.3"

32. DETENTION ANALYSIS/DESIGN ANALYSIS

- Pond routing using a volume based hydrograph for the 1(USC only)-, 2-, 10-, 25-, and 100 year SCS 24-hour rainfall event (Drain:Edge, ICPR, HEC-1, SedCAD, HYDRAFLOW, etc. perform full pond routings: TR55 does not perform a full pond routing; rational method cannot be used)
- Hydrologic and hydraulic calculations necessary to determine the impact of hydrograph timing modifications of the proposed development, with and without the pond (results of analysis will determine the need to modify the pond design or eliminate the pond requirement-see note in item 10)
- Inputs and outputs from the routing analysis program
- Summary table of the peak inflows, peak outflows, and maximum water surface elevations (WSE) for the 2, 10, 25 and 100-year storm events for each pond
- Include dimensions for all components of each pond.
- Stage-storage-discharge relationship for the outlet structure of each detention structure
- If a rating curve for the outlet structure must be generated externally from the analysis program (Drain:Edge, HEC-1, HydroCAD), provide the data and equations used to rate the outlet structure.
- Include an as-built detail of the existing detention pond if the site drains to an existing detention pond (see below).
- *Note: SedCAD users please refer to the memo regarding the input of the outlet structures on the DHEC website.*

Pond Design

Include the following details and calculations:

- Detail of outlet structure and cross-section of the dam, including elevations and dimensions that correspond to the calculations.
- Orifice constructability considered (do not specify orifice diameters with increments of less than ¼").
- *Note: small orifices (those less than 3") are prone to clogging*
- Maximum WSE for the 100-year storm event below the embankment with 1-ft of freeboard between maximum WSE for the 100-year storm embankment.
- Dewatering time calculations for the 10-year storm event (dry ponds must drain completely within 72 hours, wet ponds must drain to normal pool elevation within 72 hours).
- Bottom of all detention and retention ponds graded to have a slope of not less than 0.5%.
- If the pond is to be used for sediment control during construction, skimmers, baffles, and forebays must be used during construction and shown on the pond detail. In addition, the construction sequence must include the steps to be taken by the contractor to ensure that the final contours of the detention pond are restored to the contours in the design.
- Permanent maintenance access must be provided to all permanent detention structures.
- Emergency spillways should not be built on fill slopes.
- Installation of a trash rack or other debris-screening device on all pond risers.
- *Note: SC DHEC recommends a maximum slope of 3:1 on pond embankments to allow for ease of maintenance.*
- *Note: SC DHEC recommends installation of sediment forebays at each outfall into the detention/ sediment basin. This is a requirement during construction*

Other BMPs

- Where infiltration systems are included, they must be designed in accordance with section 3.8.7 of the Land Development Manual.
- Low Impact Development measures, bioretention cells, infiltration, and other post-construction

practices should be installed only after the drainage area to these practices has been stabilized.

33. WATER QUALITY CREDITS (OPTION B ONLY)

- Water quality credits (i.e. natural conservation areas, stream buffers, vegetated channels, overland flow/infiltration zones, and environmentally sensitive large lot subdivisions) must meet all the minimum requirements outlined in Section 3.8 of the LDM.
- All credit areas must be identified on final plans, including temporary controls installed to protect credit areas that are to be left undisturbed or that rely on infiltration.
- Ensure correct final construction of water quality credit areas needed for credits.
- Develop maintenance requirements and documents (i.e. easement documents). Ensure long term protection and maintenance for credit areas.
- *Note: Credits cannot be claimed twice for an identical area of the site (i.e. claiming credit for stream buffers and overland flow infiltration zones over the same site area).*
- *Note: Consult with the County to ensure if and when a credit is applicable and to determine restrictions on non-structural strategies.*

34. DISCHARGE POINTS

- Storm drainage or pond outfalls carried to an existing drainage outfall such as a pipe, ditch, etc.
- No new point discharges onto adjacent property where there was not a point discharge previously without providing the adjacent property owner's written permission.
- A recorded discharge agreement is required for all increases in discharge onto adjacent property. Water quality treatment is still required.
- Level spreaders, plunge pools, etc. must be provided at the end of the discharge point to ensure non-erosive discharges.
- Provide a 50-foot minimum undisturbed buffer between the end of the drainage outfall and the property line
- Outlets are not allowed to discharge on fill slopes
- Discharge pipes greater than 24" require headwall with wings
- Headwalls are required in major drainage channels
- Rip-rap headwalls are acceptable for pipes less than 24"
- *Note: This requirement also applies during construction*

35. PERMANENT STRUCTURAL BMP MAINTENANCE AGREEMENTS

- All permanent BMPs intended for operation and maintenance by Lexington County designed in accordance with Option B, described above.
- A signed agreement from a responsible party accepting ownership and maintenance of the structure shall be provided for all privately owned BMPs. This document needs to be recorded with the Lexington County Register of Deeds.
- If maintenance responsibility is transferred after NPDES coverage is granted, an updated agreement should be submitted with the Notice of Termination

36. DRAINAGE AREA MAPS

- Provide a drainage area map outlining the area draining to each outfall on site. Show existing and proposed contours for the site layout, as well as pre-development drainage area map and a post-development drainage area map. Include offsite run-on in drainage areas.
- Overlay soil types and HSG on drainage area map
- Place calculated design flows on each pipe and BMPs
- Provide the time of concentrations and curve numbers for each drainage area.
- Provide routing hydrographs for the 1, 2, 10, 25, and 100-year storm event
- Show pipe capacities for the design storm
- Provide Basin stage/storage and stage discharge calculations
- Label watershed areas within the drainage area map with (watershed identifier, CN, area, length, slope)
- Include designed velocities for swales

37. TMDL/ 303d IMPAIRED WATERBODIES (POST-CONSTRUCTION)

- If Approved TMDL developed for nearest WQMS and if site's stormwater post-construction discharges contain the pollutant of impairment, showed that measures and controls on SWPPP met assumptions and requirements of TMDL For TURBIDITY, BIO (Macroinvertebrate), consider inclusion of permanent BMPs to reduce sediment load such as: wet pond, dry swales and sand filters
- For TP (Total Phosphorous), TN (Total Nitrogen), and Chlorophyll-A, consider inclusion of BMPs to reduce nutrient load. This could include wet ponds, enhanced swales, infiltration trenches, etc.

38. DOWNSTREAM ANALYSIS

- Downstream Analysis studies shall be done using the design and 100-year 24-hour storm events. Each downstream analysis shall determine whether the design storm events of interest cause or make worse the following:
 - Flooding of structures or
 - Overtop roadway crossings
- Downstream analysis shall study shall be to the point where development represents less than 10 percent of the total drainage area of the watershed to that point.
- *Note: Typical points of concern shall be analyzed within this 10 percent area (i.e. first downstream road crossing, downstream residential lots, location of known existing flooding, drainage or erosion problems, any point as directed by Lexington County).*
- Primary areas for analysis shall be done for:
 - The development area
 - All outfall points from the property,
 - The receiving channel at the exit points, and
 - Each component of the downstream system including:
 - Channels, pipes, culverts, and bridges

Downstream Analysis Criteria

- Existing land use curve numbers shall be used for developed areas upstream.
- The weighted curve number for the proposed development site shall be used for all undeveloped upstream areas
- Existing land use for downstream areas of interest may be used, but future land use, when applicable, is recommended for conservative results.
- Routing of flows using an accepted hydrologic and hydraulic method from Section X of LDM.
- Hydraulic step-backwater calculations (Corps of Engineer's HEC-2 or HEC-RAS models or equivalent) shall be performed to determine flood elevations of any downstream impacted areas.
- The effects of any upstream and proposed stormwater quantity or quality structures.

Downstream Impact Mitigation Options

If the downstream analysis determines that the development of a particular site does cause a negative impact, then at least one of the following improvements shall be implemented:

1. On-site Water Quantity Control
 2. Off-site Water Quantity Control
 3. Improvements to the Downstream Stormwater Conveyance System
 4. Off-site drainage or flow easements
- *Note: See Chapter 3 of the LDM for further criteria requirements for the methods listed above. Provide calculations of the proposed improvements per the LDM requirements accordingly.*

39. AS-BUILTS

To be provided see As-Built checklist.

40. APPLICANT AND DEVELOPER CERTIFICATIONS

- The following certifications must be signed on the final sets of plans for approval.

Applicant's Certification

I (We) hereby certify that all clearing, grading, construction, and/or development will be done pursuant to this plan and I (we) are responsible for the land disturbance and related maintenance thereof. Lexington County authorities will be allowed to enter the project site for the purposed of on-site inspections.

Date

Owner/Person Financially Responsible

Designer's Certification

"I hereby certify that this plan is designed to contain soil on the property concerned to the maximum extent, to provide for the protection of the property and the proposed improvements thereon from the effects of flooding, to provide for the control of the runoff from the property, and that all the provisions for sediment control and storm drainage are in accordance with the Stormwater Management and Sediment Control Ordinance for Lexington County, South Carolina."

Date

Designer's Signature and Certification